

## **LAP Bridge: Items Required for Plan Review Submission**

### **1. General Instructions**

**Submit the National Environmental Policy Act (NEPA), Form 5323, 3 to 6 months prior to the Plan Review Package submittal.**

Submit Bridge Program Application (Form 0258) with Plan Review Package for review. One program application per job number. Multiple structures under one job number, submit pages 1 and 2 for each structure.

Provide a separate set of bridge plans for each structure. All bridge plan sets will be placed under one project title sheet.

Bridge Projects must include 11" x 17" plan sheets, log format is not allowed.

#### **Asbestos Testing**

All Bridge projects must be tested for asbestos by a qualified testing facility. The final asbestos test report shall be submitted to MDOT at final project turn in and will be included in the bidding documents (RID file). This includes all concrete elements and any component that may contain asbestos including, but not limited to, joint material, membranes, HMA overlays, conduits, etc.

### **2. Special Provisions**

- A. Each Non-Standard Pay Item needs a special provision
- B. Pay Item Name must match the estimate and plans exactly
- C. Pay Item Unit must be spelled out to match unit names of standard spec. book
- D. Maintaining Traffic with Detour Route map and legend (when detour required).
- E. HMA Application Estimate (optional if HMA application table in Plans)

### **3. Other Items**

- A. Progress Clause (Use LAP template Progress Clause)
- B. Notice To Bidders For Utility Coordination
- C. Coordination Clause

### **4. Estimate**

- A. Preliminary List of Pay Items
- B. Breakdown between Bridge and Approach Pay Items
  - 1. Participating Road Pay Items – Category 1
  - 2. Participating Bridge Pay Items – Category 2
  - 3. Non-Participating Road Pay Items – Category 3
  - 4. Non-Participating Bridge Pay Items – Category 4
- C. Pay Codes for each Pay Item
- D. Cost Estimate should be substantially complete (No contingency pay items at this stage)

## **5. Plans – Submit 11” x 17” Plan Sheets**

### **A. Title Sheet**

1. Traffic Data (present & future ADTs, posted & design speeds, % commercial)
2. Township, Section, and Range
3. Utility Companies List (if not on Site sheet)
4. Preliminary List of Standard Plans / Special Details
5. Preliminary Index of Plan Sheets
6. Preliminary Project Titles (actual numbers will be supplied later)
  - a) Local Agency
  - b) Structure Number
  - c) Job Number
  - d) Control Section
7. Map of Bridge Location (include detour route if not shown elsewhere)
8. Notes: All applicable MDOT Design Manual notes.
9. Preliminary Title Block
10. Bridge Structure Number & Job Number on all sheets
11. Design Loading

### **B. General Plan of Site**

1. Plan View of Project
  - a) Right of Way Limits
  - b) Slope Stake Line
  - c) Easements Labeled
    - 1) Permanent Easements
    - 2) Grading Permits
  - d) Stations Shown (include P.O.B. & P.O.E.)
  - e) Utilities
  - f) Flow direction and name of water course (if applicable)
  - g) North Arrow
  - h) Layout of Bridge
    - 1) deck
    - 2) approach
    - 3) wingwalls
    - 4) guardrail
  - i) Survey and Construction Centerlines
  - j) Horizontal Alignment (including bearings) and/or Alignment Diagram
  - k) Outline of Existing Bridge
  - l) Erosion Control w/ Legend (if not shown on another plan sheet)
  - m) Topography
2. Elevation View
  - a) Vertical Alignment
    - 1) All vertical curve data (for grade changes over 1%)
      - a) Grade Left
      - b) Grade Right

- c) Length
    - d) K value computed
  - 2) Existing and Proposed Alignments
  - 3) Existing Grades just outside the P.O.B. & P.O.E.
- b) Span Lengths
- c) Reference Point Stations and Elevations
- d) Project Limits (include labels for P.O.B. and P.O.E.)
- e) Bottom of Abutment, Pier Footing Elevations
- f) Pile Information: Capacity and Type (if applicable)
- g) Water Surface Information (survey elevation & date and 100-year elevation)
- h) Rip Rap
- i) Stations and Elevations
- j) Proposed Low Beam Elevation
- 3. Benchmark Box
- 4. Existing Structure Information
- 5. Control Points or Horizontal Tie Points
- 6. Notes: All that pertain from the MDOT Design Manual
- 7. Title Block with Structure Number(s) and Job Number(s)
- 8. Construction Staging Details (if applicable)
  - a) Show removal/proposed part width portions with staging, including permanent/temporary steel sheeting

C. **Log of Borings** (*see current AASHTO Standard Specifications for Highway Bridges, Section 4 – Foundations, Subsurface Exploration - General Requirements for minimum depth and minimum coverage*)

- 1. Soil Profile
  - a) Soil Strata
  - b) Blow Counts with three 6" increments
  - c) Elevations shown, not depths
- 2. Pile Information (if applicable)
  - a) Bottom of Footing Elevations (abutments and piers)
  - b) Bottom of Tremie Elevations (if necessary)
  - c) Minimum Pile Penetration Elevations (minimum 10 ft below estimated scour elevation)
  - d) Estimated Pile Penetration Elevations
  - e) Total Scour Elevations
  - f) Soil Borings must be a minimum of 10 feet below the estimated pile tip
- 3. Notes: All that pertain from MDOT Bridge Design Manual
- 4. Soil Boring Diagram indicating locations of borings

D. **General Plan of Structure**

- 1. Plan View of Structure
  - a) Lane and Shoulder Widths dimensioned
  - b) Clear Roadway dimensioned

- c) Angle of Crossing shown
  - d) Reference Points: Stations and Elevations
  - e) Guardrail Details shown
  - f) Rip Rap shown with dimensions (if applicable)
  - g) Slope Stake Line
  - h) Permanent Easements and Grading Permits shown
  - i) Survey and Construction Centerline shown
  - j) Slope Steepness indicated
  - k) Erosion Control/legend shown (if not shown on another sheet)
  - l) Right of Way Limits shown and dimensioned
  - m) Cofferdam Layout (if applicable)
  - n) Temporary/Permanent sheeting for stage construction (if applicable)
2. Elevation View of Structure
- a) Railing Type shown
  - b) Beam Type indicated with low point of bottom (if applicable)
  - c) Berm Elevation shown
  - d) Water Elevations shown
    - 1) Elevation at Date of Survey
    - 2) 100-year Elevation (provide 2 foot freeboard per drainage manual, if possible, otherwise, will need to design for pressure flow)
  - e) Rip Rap shown, include degree of slope
  - f) Cofferdams shown
  - g) Piles shown
    - 1) Type shown
    - 2) Capacity shown
  - h) Abutments and Pier(s) shown
    - 1) Bottom of Tremie Elevations
    - 2) Bottom of Footing Elevations
  - i) Guardrail Layout, Type and Stationing
  - j) Approach Type information
  - k) Bearing Fixity
  - l) Vertical Under clearance (if grade or railroad separation)
  - m) Span Lengths
  - n) Overall Bridge Length
3. HMA Application Table (optional if SP of HMA Application Estimate)
4. Hydraulic Table – To be completed for river/drain crossings, as shown in the MDOT Bridge Design Manual, with the following data.
- a) 50 Year Data
  - b) 100 Year Data
5. Typical Bridge Cross Section
- a) Lane and Shoulder Widths shown: include centerline label

- b) Shoulder to Fascia Distances dimensioned
  - c) Centerline to Fascia Distances dimensioned
  - d) Out to Out of Fascia dimensioned
  - e) Deck Material and Thickness shown
  - f) Deck Cross Slope shown
  - g) Railing Type indicated
  - h) Number and Type of Beam shown
  - i) Earth Slopes shown (include existing and proposed)
  - j) Rip Rap shown
  - k) Pile Type and Capacity shown (include pile batter)
  - l) Limits of Backfill and Excavation shown
  - m) Cofferdams shown (if necessary, ensure not interfering with battered piles)
6. Typical Section Through Abutment / Pier
- a) Deck Type shown
  - b) Beam Type shown
  - c) Reference Lines shown
  - d) Approach Material shown (abutments)
  - e) Rip Rap shown
  - f) Limits of Backfill and Excavation
  - g) Berm Elevations (abutments)
  - h) Bottom of Tremie Elevations
  - i) Bottom of Footing Elevations shown
  - j) Pile Type, Capacity and Batter shown
  - k) Cofferdams shown
  - l) Dimensions of Abutments and Piers
    - a) widths
    - b) minimum/maximum heights
7. Typical Section Through Wingwall
- a) Show all dimensions
    - 1) widths
    - 2) minimum/maximum heights
  - b) Limits of Backfill and Excavation
  - c) Pile information
    - 1) Capacity
    - 2) Type
    - 3) Batter
8. Approach Typical (proposed and existing)
- a) Lane and Shoulder widths
  - b) Guardrail Type
  - c) Road/Subbase Material
9. Rip Rap Header Details (if applicable)

- a) Toe Header Dimensions w/ geotextile liner
- b) Side Header Dimensions w/ geotextile liner

10. Notes: All that pertain from the MDOT Design Manual

E. **Detour Route** - Show a map and legend sheet (if detour route required and not adding to the Maintaining Traffic special provision).

F. **Part Width Construction**

- 1. Show deck cross sections for all stages of removal. Dimension work zone. Show location and type of traffic devices separating the work zone and traffic. Show location of longitudinal construction joint.
- 2. Show plan view per stage to indicate how traffic will be maintained in the proximity of the bridge. Detail access to streets, private residents, business and driveways, including length and taper of traffic devices along the approaches/road, etc.

G. **Road Plans (Road work beyond bridge approach)**

- 1. Show existing and proposed road cross sections (Guardrail and Non-Guardrail) including limits of earth excavation, subbase, base, surface thickness and type, shoulders, curbs, gutters, ditches, sidewalks, ROW lines, existing utilities, etc.
- 2. Removal and Proposed Construction Plan and Profile sheets from POB to POE.
- 3. Proposed guardrail and type.